

ABSTRACT

In an embodiment of the invention, an electronic device includes an interfacial layer with traps. This interfacial layer is between an electrode and an organic layer, and if the electrode was adjacent to the organic layer, the energy barrier between these two layers is such that the current through the organic layer is limited by charge injection into this layer rather than the transport properties of the organic layer. The traps are used to accumulate charges of one charge type (e.g., either electrons or holes) within the interfacial layer. By accumulating charges, the bands of the interfacial layer are bent so that charges can tunnel from the electrode to the organic layer thus increasing the efficiency of the electronic device and allowing organic layers to be used within an electronic device that otherwise would be too inefficient for use in that device.